

REMARKS

Claims 1-16 are pending in the present application. Claims 1, 6, 9, and 14 are independent.

Allowable Subject Matter

Applicant appreciates the Examiner's indication that claims 6-8 and 14-16 are allowed. Applicant further appreciates the Examiner's indication that claims 2-3 and 10-11 would be allowed if rewritten into independent form. For the reasons discussed below, Applicant believes that all of the pending claims are in condition for allowance.

35 U.S.C. § 103 Fossum – Murakami Rejection

Claims 1, 4, 5, 9, and 12-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fossum (USP 6,137,100) in view of Murakami (JP Pub. #06-178198). This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

Fossum discloses techniques that adjust for the different light collection efficiencies that occur between different, respective colors received by an image sensor. To adjust for such different color sensitivities, Fossum primarily utilizes a color filter pattern which has areas that are sized to adjust for the different color collection efficiencies. For example, the blue area 110 of the color filter pattern is made to be larger than the red area 116 of the color filter pattern as shown in Fig. 1B. Thus, the largest size collection area 110 compensates for the lowest efficiency color collection element. This is further discussed in column 2, lines 38-44.

Fossum also happens to mention that separate gain elements may be utilized for separate spectral band channels in column 1, lines 65-67. Nevertheless, it is clear that these separate gain elements as well as the differently sized color filter patterns are collectively for the purpose of adjusting the relative signal strengths of the different colors. In other words, Fossum is limited to adjustments to account for different colors and their respective light collection efficiencies. Fossum has no relation to adjusting or controlling a gain amount in response to a stop amount of a diaphragm.

While it is true that Murakami appears to teach a correcting technique in which gain control amplifiers are adjusted according to the stop value of the camera lens, Murakami fails to disclose or suggest individually controlling a gain amount of a high-sensitivity image signal (obtained from a main pixel of a solid state imaging element) and a gain amount of a low sensitivity image signal (obtained from a sub-pixel of the solid state imaging element) in response to a stop amount of a diaphragm.

From Figs. 1 and 5 of Murakami, it is clear that the image pickup elements 3a, 3b, 3c, each have the same size and are certainly not divided into a main pixel having a first area for obtaining a high sensitivity image signal and a sub-pixel having a second area which is smaller than the first area for obtaining a low sensitivity image signal as recited in claim 1. No such solid state imaging element structure is disclosed or suggested by Murakami. Without such structure, Murakami is incapable of disclosing or suggesting a controller which individually controls a gain amount of the high and low sensitivity image signals (respectively from a main pixel and sub-pixel) in response to a stop amount of a diaphragm. In contrast, Murakami only appears to teach collectively controlling gain amplifiers based on a stop value and where the image signals are not high and low sensitivity image signals and are certainly not derived from or obtained from a solid state imaging element that is divided into a main pixel and sub-pixel as recited in independent claim 1.

Additionally, Fossum's image sensor utilizes light collection areas or light receiving elements that have the same relative size. This is clear from Fig. 4B which shows the collector elements 402, 404, 412, 414 as being equal sized. See also column 4, lines 37-46. Thus, Fossum fails to teach or suggest a solid state imaging element as recited in claim 1 which is divided into a main pixel having a first area and a sub-pixel having a second area smaller than the first area. Furthermore, Fossum also fails to disclose or suggest the method of claim 9 that receives incident light from a solid state imaging element divided into a main pixel with a first area and sub-pixel with a second area small than the first area.

Moreover, even if Fossum's differently sized color filter pattern to create different effective areas for different colors is somehow interpreted as a solid state imaging element as recited in claim 1 which is divided into a main pixel having a first area and a sub-pixel having a

second area smaller than the first area (which Applicant does not admit and which indeed specifically challenge), then Fossum still does not teach or suggest a controller which individually controls a gain amount of high and low sensitivity image signals in response to a stop amount of a diaphragm. Clearly, Murakami does not disclose or suggest any such structure or function and Fossum also fails to disclose or suggest any such structure or function. Thus, the combination of these two publications also must fail.

With regard to claim 9, the combination of Fossum and Murakami also fail to disclose or suggest the method recited therein. Particularly, neither reference, even when taken in combination individually controls a gain amount of a high sensitivity image signal (obtained from a main pixel) and a gain amount of a low sensitivity image signal (obtained from a sub-pixel having a area smaller than an area of the main pixel) in response to a stop amount of the diaphragm. Again, Murakami only teaches changing the overall sensitivity of the solid state pickup element based on a stop value of the camera lens and certainly has no individual control of gain amount as claimed in independent claim 9.

Dependent claims 4, 5, 12, and 13 are considered patentable at least due to their dependency upon independent claims 1 and 9 which are specifically argued above.

For all of the above reasons, taken alone or in combination, Applicant respectfully requests reconsideration and withdrawal of the Section 103 Fossum - Murakami rejection.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

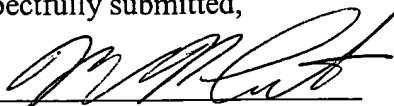
Application No. 10/757,466
Amendment dated November 17, 2005
After Final Office Action of June 17, 2005

Docket No.: 0649-0934P

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Dated: November 17, 2005

Respectfully submitted,

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